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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,257	08/31/2006	Wagner Ingo	59344US004	9293
32692 7590 05/12/2009 3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			EXAMINER KWAK, DEAN P	
			ART UNIT	PAPER NUMBER
			1797	
			NOTIFICATION DATE	DELIVERY MODE
			05/12/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/591,257	Applicant(s) INGO ET AL.	
	Examiner DEAN KWAK	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
 4a) Of the above claim(s) 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/29/2007, 04/05/2007</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “**detector**” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 4, 5, 7-9, 11, 13 & 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Dreve (US 5,853,774).

Regarding Claim 1, Dreve discloses an apparatus for generating a multi-component compound (Abstract), in particular for dental purposes, comprising:

- at least two cartridges (C2/L13), each cartridge adapted for containing a component (e.g., pasty mass, C1/L49) of the multi-component compound and having a plunger (e.g., pistons, C4/L29 & Fig. 5 (2)) adapted for pressing out its component from the cartridge; and
- a driving device (e.g., electric motor, C2/L24) for said plungers in which the driving speed is adjustable (“...speed adjustment can itself be ... stepped”, C2/L26-27), wherein the driving device comprises a stepping motor (see “stepped”, C2/L24-25), and a detector (e.g., limit switch, C2/L29 & Fig. 5 (44)) associated with the stepping motor for detecting the load on the stepping motor (C2/L29-30).

Regarding Claims 4 & 5, Dreve further discloses an apparatus wherein:

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- the driving device is adapted to drive the stepping motor at a predetermined constant speed (C2/L24-27); and
- the driving device is adapted to drive the stepping motor at different predetermined essentially constant speeds for one or different components and compounds (C2/L24-27).

Regarding Claim 7, according to the specification of the instant application, a stepping motor has high torque at low speed ([0027]); therefore a stepping motor inherently has the recited limitations.

Regarding Claims 8, 9, 11 & 16, Dreve further discloses an apparatus wherein:

- an output shaft (e.g., driven shaft, C5/L5 & Fig. 5 (10)) of the stepping motor is connected via a belt (e.g., flexible steel band, C5/L5-6 & Fig. 5 (11)) to each device (see Fig. 5) for moving the plunger;
- the driving device is adapted to monitor the position of the plungers (e.g., limit switch, C2/L29 & Fig. 5 (44));
- the driving device is adapted to detect and monitor an empty position of a plunger when said respective cartridge is empty (C3/L19-25); and
- comprising a mixer (e.g., mixing head, C4/L33 & Fig. 1 (40)).

Regarding Claim 13, Dreve discloses a method for generating a multi-component compound (Abstract), in particular for dental purposes by pressing out and mixing its

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components (e.g., pasty mass, C1/L49) from at least two cartridges (C2/L13) by driving plungers (e.g., pistons, C4/L29 & Fig. 5 (2)) inside the cartridges by means of a driving device in which the driving speed is adjustable (“...speed adjustment can itself be ... stepped”, C2/L26-27), wherein a stepping motor (see “stepped”, C2/L24-25) for driving the plungers is provided.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muhlbauer et al. (US 6,315,164) and further in view of Dreve (US 5,853,774).

Regarding Claim 1, Muhlbauer et al. discloses an apparatus for generating a multi-component compound (Abstract), in particular for dental purposes, comprising:

- at least two cartridges (C4/L6 & Fig. 1 (5)), each cartridge adapted for containing a component (“pressing its components”, Abstract) of the multi-component compound and having a plunger (C4/L6-24; also see C4/L10, e.g., stamps & Fig. 1 (11)) adapted for pressing out its component from the cartridge; and
- a driving device for said plungers in which the driving speed is adjustable (see “regulating the advance speed...”, C2/L37-59), wherein the driving device comprises a motor (C4/L34 & Fig. 1 (22)), and a detector (e.g., electronic unit, C4/L50 & Fig. 1 (30)) associated with the motor for detecting the load on the stepping motor (C2/L47-48).

However, Muhlbauer et al. fails to disclose the status of load by the step frequency of the stepping motor.

Dreve discloses an apparatus for generating a multi-component compound (Abstract), in particular for dental purposes, comprising:

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- at least two cartridges (C2/L13), each cartridge adapted for containing a component (e.g., pasty mass, C1/L49) of the multi-component compound and having a plunger (e.g., pistons, C4/L29 & Fig. 5 (2)) adapted for pressing out its component from the cartridge; and
- a driving device (e.g., electric motor, C2/L24) for said plungers in which the driving speed is adjustable (“...speed adjustment can itself be ... stepped”, C2/L26-27), wherein the driving device comprises a stepping motor (see “stepped”, C2/L24-25), and a detector (e.g., limit switch, C2/L29 & Fig. 5 (44)) associated with the stepping motor for detecting the load on the stepping motor (C2/L29-30).

Muhlbauer et al. and Dreve are analogous because these references are directed to an apparatus for generating a multi-component compound (Abstracts).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a stepping motor, as taught by Dreve, to a multi-component compound with a motor, as taught by Muhlbauer et al., since it is known in the art that a stepping motor is used in mixing very viscous materials, as disclosed by Dreve (C2/L27-29).

Regarding Claims 2-6, modified Muhlbauer et al. discloses an apparatus wherein:

- the detector detects the status of load by the step frequency of the stepping motor (C2/L37-42);

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- the detector detects the increase of load by a change or loss of driving steps of the stepping motor (Claims 1 & 2);
- the driving device is adapted to drive the stepping motor at a predetermined constant speed (Claims 1 & 2);
- the driving device is adapted to drive the stepping motor at different predetermined essentially constant speeds for one or different components and compounds (Claim 1);
- a predetermined speed of the stepping motor is essentially constant when the stepping motor is under load and at a higher speed in the absence of load (P5/L24-32).

Regarding Claim 7, modified Muhlbauer et al. discloses the recited limitations since the specification of the instant application states that a stepping motor has high torque at low speed ([0027]); therefore a stepping motor inherently has the recited limitations.

Regarding Claims 8-12 & 16, modified Muhlbauer et al. further discloses an apparatus wherein:

- an output shaft (e.g., threaded spindle, C4/L15 & Fig. 1 (14)) of the stepping motor is connected via a belt (C4/L27-28); or via wheels (e.g., annular discs, C4/L29) to each device (see Fig. 1) for moving the plunger;
- the driving device is adapted to monitor the position of the plungers (Claim 3);

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- the driving device is adapted to monitor the position of the plungers by monitoring the driving steps of the stepping motor (Claim 3);
- the driving device is adapted to detect and monitor an empty position of a plunger when said respective cartridge is empty (Claim 4);
- the driving device is adapted to detect when the plungers contact the components after inserting the cartridges (Claim 2); and
- comprising a mixer (e.g., mixer nozzle, C3/L63 & Fig. 1 (10)).

Regarding Claim 13, Muhlbauer et al. discloses a method for generating a multi-component compound (Abstract), in particular for dental purposes by pressing out and mixing its components (“pressing its components”, Abstract) from at least two cartridges (C4/L6 & Fig. 1 (5)) by driving plungers (C4/L6-24; also see C4/L10, e.g., stamps & Fig. 1 (11)) inside the cartridges by means of a driving device in which the driving speed is adjustable (see “regulating the advance speed...”, C2/L37-59), wherein a motor (C4/L34 & Fig. 1 (22)) for driving the plungers is provided.

However, Muhlbauer et al. fails to disclose the status of load by the step frequency of the stepping motor.

Dreve discloses a method for generating a multi-component compound (Abstract), in particular for dental purposes by pressing out and mixing its components (e.g., pasty mass, C1/L49) from at least two cartridges (C2/L13) by driving plungers (e.g., pistons, C4/L29 & Fig.

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5 (2)) inside the cartridges by means of a driving device in which the driving speed is adjustable (“...speed adjustment can itself be ... stepped”, C2/L26-27), wherein a stepping motor (see “stepped”, C2/L24-25) for driving the plungers is provided.

Muhlbauer et al. and Dreve are analogous because these references are directed to an apparatus for generating a multi-component compound (Abstracts).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a stepping motor, as taught by Dreve, to a multi-component compound with a motor, as taught by Muhlbauer et al., since it is known in the art that a stepping motor is used in mixing very viscous materials, as disclosed by Dreve (C2/L27-29).

Regarding Claims 14 & 15, modified Muhlbauer et al. further discloses a method comprising the steps that:

- the plungers are advanced with high speed into an initial position in which they get in contact with the components (Claim 2);
- the plungers are retracted with high speed for a predetermined relief distance (C5/L18-21);
- the plungers are advanced with high speed either for a predetermined bias distance greater than the relief distance, or until the components begin flowing out of the cartridges or into the mixer (“rapid movement”, C5/L11-18);
- the plungers are driven with low speed for pressing out the components from the cartridges (P5/L24-32); and

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- during driving the plungers with low speed for pressing out the components from the cartridges, the pressing force or load of the stepping motor is monitored and compared with a predetermined upper limit (see measuring and comparing to a predetermined valves, C4/L50-C5/L3);
- if the upper limit is reached or exceeded, the stepping motor is stopped or adjusted to a lower speed (C5/L4-10).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Owen et al. (US 5,605,252) discloses a mixing and metering apparatus and method; and
- Farrell et al. (US 5,788,927) discloses a DC motor function as a "step" motor (C35/L22-34).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEAN KWAK whose telephone number is (571) 270-7072. The examiner can normally be reached on M-TH, 5 am - 3:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

06May09

/D. K./

Examiner, Art Unit 1797

/Lyle A Alexander/

Primary Examiner, Art Unit 1797